

**REMARKS**

The Examiner rejected claims 1-8, 29-35, 69 and 76-79 under 35 U.S.C. §102(b) as allegedly being anticipated by Sakai (U.S. Patent 6,077,477).

The Examiner rejected claims 1-6, 9-15, 17-21, 29-30, 32-33, 36-38, 40, 42-43, 45, 50-54, 56-61, 69-71 and 73-77 under 35 U.S.C. §102(b) as allegedly being anticipated by Tanaka (Japanese publication 2001-138088).

The Examiner rejected claims 11-17, 20-28, 36-56, 59-68 and 70-73 under 35 U.S.C. §103(a) as allegedly being unpatentable over applicant's disclosure of the prior art in view of Sakai (U.S. Patent 6,077,477).

The Examiner rejected claims 16, 22-24, 26-28, 39, 44, 46, 48-49, 55, 62-64, 67-68 and 72 under 35 U.S.C. §103(a) as allegedly being unpatentable over applicant's disclosure of the prior art in view of Tanaka (Japanese publication 2001-138088).

Applicants respectfully traverse the §102(b) and §103(a) rejections with the following arguments.

**35 U.S.C. §102(b): Sakai**

The Examiner rejected claims 1-8, 29-35, 69 and 76-79 under 35 U.S.C. §102(b) as allegedly being anticipated by Sakai (U.S. Patent 6,077,477).

Claims 2-4, 7-8, 76, and 78-79 have been canceled.

Applicants respectfully contend that Sakai does not anticipate claim 1, because Sakai does not teach each and every feature of claim 1. For example, Sakai does not teach "wherein the bismuth has a weight percent concentration in the alloy from 0.1% to about 0.2". Based on the preceding arguments, Applicants respectfully maintain that Sakai does not anticipate claim 1, and that claim 1 is in condition for allowance. Since claims 5-6 and 9-10 depend from claim 1, Applicants contend that claims 5-6 and 9-10 are likewise in condition for allowance.

Applicants respectfully contend that Sakai does not anticipate claim 29, because Sakai does not teach each and every feature of claim 29. For example, Sakai does not teach "solidifying the melted alloy by cooling the melted alloy at a cooling rate in a range of about 1.2 °C/sec to about 3.0 °C/sec". Based on the preceding arguments, Applicants respectfully maintain that Sakai does not anticipate claim 29, and that claim 29 is in condition for allowance. Since claims 30-35 depend from claim 29, Applicants contend that claims 30-35 are likewise in condition for allowance.

Applicants respectfully contend that Sakai does not anticipate claim 69, because

Sakai does not teach each and every feature of claim 69. For example, Sakai does not teach "wherein the bismuth has a weight percent concentration in the alloy from 0.1% to about 0.2".

Based on the preceding arguments, Applicants respectfully maintain that Sakai does not anticipate claim 69, and that claim 69 is in condition for allowance. Since claims 70-73, 75, and 77 depend from claim 69, Applicants contend that claims 70-73, 75, and 77 are likewise in condition for allowance.

**35 U.S.C. §102(b): Tanaka**

The Examiner rejected claims 1-6, 9-15, 17-21, 29-30, 32-33, 36-38, 40, 42-43, 45, 50-54, 56-61, 69-71 and 73-77 under 35 U.S.C. §102(b) as allegedly being anticipated by Tanaka (Japanese publication 2001-138088).

Claims 2-4, 74, and 76 have been canceled.

Applicants respectfully contend that Tanaka does not anticipate claim 1, because Tanaka does not teach each and every feature of claim 1. For example, Tanaka does not teach "wherein the bismuth has a weight percent concentration in the alloy from 0.1% to about 0.2". Based on the preceding arguments, Applicants respectfully maintain that Tanaka does not anticipate claim 1, and that claim 1 is in condition for allowance. Since claims 5-6 and 9-10 depend from claim 1, Applicants contend that claims 5-6 and 9-10 are likewise in condition for allowance.

Applicants respectfully contend that Tanaka does not anticipate claim 11, because Tanaka does not teach each and every feature of claim 11. For example, Tanaka does not teach the features: "providing a first substrate and a first solder ball attached to a **first electrically conductive pad** that is coupled to the first substrate ... [and] ... providing a second substrate and a **second electrically conductive pad** coupled to the second substrate" (emphasis added). In addition, the Examiner has not presented any argument to demonstrate that Tanaka teaches said features of claim 11. Moreover, the Examiner has not even alleged that Tanaka teaches said features of claim 11. Accordingly, Applicants respectfully contend that the rejection of claim 11

10/078,020

23

is improper and should be withdrawn. Based on the preceding arguments, Applicants respectfully maintain that Tanaka does not anticipate claim 11, and that claim 11 is in condition for allowance. Since claims 12-28 depend from claim 11, Applicants contend that claims 12-28 are likewise in condition for allowance.

Applicants respectfully contend that Tanaka does not anticipate claim 29, because Tanaka does not teach each and every feature of claim 29. For example, Tanaka does not teach "solidifying the melted alloy by cooling the melted alloy at a cooling rate in a range of about 1.2 °C/sec to about 3.0 °C/sec". Based on the preceding arguments, Applicants respectfully maintain that Tanaka does not anticipate claim 29, and that claim 29 is in condition for allowance. Since claims 30-35 depend from claim 29, Applicants contend that claims 30-35 are likewise in condition for allowance.

Applicants respectfully contend that Tanaka does not anticipate claim 36, because Tanaka does not teach each and every feature of claim 36. For example, Tanaka does not teach "solidifying the modified solder ball by cooling the modified solder ball at a cooling rate in a range of about 1.2 °C/sec to about 3.0 °C/sec". Based on the preceding arguments, Applicants respectfully maintain that Tanaka does not anticipate claim 36, and that claim 36 is in condition for allowance. Since claims 37-49 depend from claim 36, Applicants contend that claims 37-49 are likewise in condition for allowance.

Applicants respectfully contend that Tanaka does not anticipate claim 50, because

Tanaka does not teach each and every feature of claim 50. For example, Tanaka does not teach "wherein the bismuth has a weight percent concentration in the alloy from 0.1% to about 0.2%". Based on the preceding arguments, Applicants respectfully maintain that Tanaka does not anticipate claim 50, and that claim 50 is in condition for allowance. Since claims 51-61, 63-64, and 67-68 depend from claim 50, Applicants contend that claims 51-61, 63-64, and 67-68 are likewise in condition for allowance.

Applicants respectfully contend that Tanaka does not anticipate claim 69, because Tanaka does not teach each and every feature of claim 69. For example, Tanaka does not teach "wherein the bismuth has a weight percent concentration in the alloy from 0.1% to about 0.2%". Based on the preceding arguments, Applicants respectfully maintain that Tanaka does not anticipate claim 69, and that claim 69 is in condition for allowance. Since claims 70-73, 75, and 77 depend from claim 69, Applicants contend that claims 70-73, 75, and 77 are likewise in condition for allowance.

**35 U.S.C. §103(a): Applicants' Disclosure of Prior Art In View of Sakai**

The Examiner rejected claims 11-17, 20-28, 36-56, 59-68 and 70-73 under 35 U.S.C. §103(a) as allegedly being unpatentable over Applicant's disclosure of the prior art in view of Sakai (U.S. Patent 6,077,477).

Claims 62 and 65-66 have been canceled.

Applicants respectfully contend that claim 11 is not unpatentable over Applicant's disclosure of the prior art in view of Sakai, because Applicant's disclosure of the prior art in view of Sakai does not teach or suggest each and every feature of claim 11. For example, Applicant's disclosure of the prior art in view of Sakai does not teach or suggest the features: "providing a first substrate and a first solder ball attached to a **first electrically conductive pad** that is coupled to the first substrate ... [and] ... providing a second substrate and a **second electrically conductive pad** coupled to the second substrate" (emphasis added). In addition, the Examiner has not presented any argument to demonstrate that Applicant's disclosure of the prior art in view of Sakai teaches or suggests said features of claim 11. Moreover, the Examiner has not even alleged that Applicant's disclosure of the prior art in view of Sakai teaches or suggests said features of claim 11. Accordingly, Applicants respectfully contend that the rejection of claim 11 is improper and should be withdrawn. Based on the preceding arguments, Applicants respectfully maintain that claim 11 is not unpatentable over Applicant's disclosure of the prior art in view of Sakai, and that claim 11 is in condition for allowance. Since claims 12-28 depend from claim 11, Applicants contend that claims 12-28 are likewise in condition for allowance.

Applicants respectfully contend that claim 36 is not unpatentable over Applicant's disclosure of the prior art in view of Sakai, because Applicant's disclosure of the prior art in view of Sakai does not teach or suggest each and every feature of claim 36. For example, Sakai does not teach or suggest "solidifying the modified solder ball by cooling the modified solder ball at a cooling rate in a range of about 1.2 °C/sec to about 3.0 °C/sec". Based on the preceding arguments, Applicants respectfully maintain that claim 36 is not unpatentable over Applicant's disclosure of the prior art in view of Sakai, and that claim 36 is in condition for allowance. Since claims 37-49 depend from claim 36, Applicants contend that claims 37-49 are likewise in condition for allowance.

Applicants respectfully contend that claim 50 is not unpatentable over Applicant's disclosure of the prior art in view of Sakai, because Sakai does not teach or suggest each and every feature of claim 50. For example, Applicant's disclosure of the prior art in view of Sakai does not teach or suggest "wherein the bismuth has a weight percent concentration in the alloy from 0.1% to about 0.2%". Based on the preceding arguments, Applicants respectfully maintain that claim 50 is not unpatentable over Applicant's disclosure of the prior art in view of Sakai, and that claim 50 is in condition for allowance. Since claims 51-61, 63-64, and 67-68 depend from claim 50, Applicants contend that claims 51-61, 63-64, and 67-68 are likewise in condition for allowance.

Since claims 70-73 depend from claim 69, which Applicants have argued *supra* to be patentable under 35 U.S.C. §102(b), Applicants maintain that claims 70-73 are not unpatentable

under 35 U.S.C. §103(a).

10/078,020

28

**35 U.S.C. §103(a): Applicants' Disclosure of Prior Art In View of Tanaka**

The Examiner rejected claims 16, 22-24, 26-28, 39, 44, 46, 48-49, 55, 62-64, 67-68 and 72 under 35 U.S.C. §103(a) as allegedly being unpatentable over applicant's disclosure of the prior art in view of Tanaka (Japanese publication 2001-138088).

Claims 62 has been canceled.

Since claims 16, 22-24, and 26-28 depend from claim 11, which Applicants have argued *supra* to be patentable under 35 U.S.C. §102(b), Applicants maintain that claims 16, 22-24, and 26-28 are not unpatentable under 35 U.S.C. §103(a).

Since claims 39, 44, 46, 48-49 depend from claim 36, which Applicants have argued *supra* to be patentable under 35 U.S.C. §102(b), Applicants maintain that claims 39, 44, 46, and 48-49 are not unpatentable under 35 U.S.C. §103(a).

Since claims 55, 63-64, and 67-68 depend from claim 50, which Applicants have argued *supra* to be patentable under 35 U.S.C. §102(b), Applicants maintain that claims 55, 63-64, and 67-68 are not unpatentable under 35 U.S.C. §103(a).

Since claims 72 depends from claim 69, which Applicants have argued *supra* to be patentable under 35 U.S.C. §102(b), Applicants maintain that claim 72 is not unpatentable under 35 U.S.C. §103(a).

**CONCLUSION**

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invites the Examiner to contact Applicants' representative at the telephone number listed below. The Director is hereby authorized to charge and credit Deposit Account No. 09-0457.

Date: 12/24/2003

Schmeiser, Olsen & Watts  
3 Lear Jet Lane, Suite 201  
Latham, New York 12110  
(518) 220-1850

Jack P. Friedman  
Jack P. Friedman  
Registration No. 44,688